Transport Canada Transports Canada

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Marine Casualty Investigations

Enquêtes sur les accidents maritimes

Canada

DEATH BY ACCIDENT

ON

FISHING VESSELS

IN CANADIAN WATERS

MCI STUDY NO. 1 MAY 1987

MARINE CASUALTY INVESTIGATIONS
OTTAWA, ONTARIO

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Foreword

Statistics show that during the period 1974 to 1985 inclusive, a total of 386 fishermen perished, of which 107 deaths were due to accidents on board fishing vessels and the remaining 279 deaths were due to shipping casualties. This study deals only with reported cases of work-related accidents (industrial-type) on board commercial fishing vessels in the twelve year period. Transport Canada investigated 55 of the 107 cases, i.e. some 50 percent. These investigations were carried out as either Fact Finding or Preliminary Inquiries and form the basis for the study. Many of these deaths were from similar causes and were avoidable. The purpose of this publication is to draw the attention of industry to the elementary precautions necessary to avoid some of those fatalities.

Year	Nfld/Lab	Maritimes	Laurentian	Western	Total
1974	1	4	1	-	6
1975	3	2	1	-	6
1976	4	6	-	4	14
1977	-	1	-	4	5
1978	-	6	-	3	9
1979	1	1	2	4	8
1980	2	2	-	5	9
1981	4	3	-	3	10
1982	4	8	2	2	16
1983	2	4	-	1	8
1984	-	2	1	4	7
1985	-	6	-	3	9
Totals	22	45	7	33	107

Note: No reported fatal accidents on fishing vessels in the Inland and Central Region or the Northwest and Yukon Territories.

It is evident from the above figures that the number of deaths by accident aboard commercial fishing vessels in Canadian waters is consistent, except for some particularly tragic years.

This study consists of summaries of 55 deaths investigated by Transport Canada and is presented in three cause groups:

1. Drownings
2. Machinery/Equipment Related
3. Other/General

When researching the data, common causes were seen to be running through each group. These were:

1. The victims were not wearing any type of flotation device.

2. Imprudent actions on the part of the individuals.

3. Failure of rigging or deck fittings due to lack of maintenance or overloading.

4. Clothing or appendages becoming caught during the operation of a vessel's winch or when individuals are working near running machinery.

5. Lack of experience of some personnel on board.

6. Lack of use of some safety equipment provided by the employer.

7. The consumption of alcohol.

Safety programs including safety publications have been put in place by various bodies in the industry for all aspects of fishing, but a problem exists with ensuring that the information is read or seen by the fishermen. Transport Canada has produced various publications designed to educate the maritime public against dangerous practices and situations. One particular to the fishing industry is the Canadian Coast Guard Manual of Safety and Health for Fishermen, which was consulted in writing this study. (Note: Sections of this manual are currently under revision and a new one will be published shortly.)

Additionally, the Canadian Coast Guard Ship Safety Branch has, since 1974, been publishing Ship Safety Bulletins pointing out unsafe conditions and practices on all types of vessel as they become apparent. Two bulletins produced as a result of accidents on fishing vessels are included in the appendix. The Ship Safety Branch has also been responsible for enforcing changes in vessels' fishing equipment or design when they were found to be contributing factors in creating unsafe conditions on the vessels.

It must again be stressed that this study deals only with reported cases of work-related fatalities on board fishing vessels under Canadian jurisdiction between 1974 and 1985. 107 people have died as a direct result of these incidents. This publication is directed at the individual fisherman, who by preventing a repeat of the situations outlined may save his own life.

Note : All times expressed in this report are local time.

Group 1 - Drownings

Case 1

On April 13, 1974, Vessel A, a 510 gross ton trawler, departed Canso, N.S. for the fishing grounds. Whilst the vessel was navigating in the approaches to Canso, a seaman leaped overboard despite all efforts by his shipmates to deter and detain him. He made no attempt to save himself or call for help. The body was eventually recovered by dragging the following day.

Causes

This first case by coincidence is a suicide and, therefore, not an accident. However, it may have been prevented if the crew had been more alert to the man's state of mind.

Case 2

On October 28, 1975, Vessel B, a 750 gross ton stern-trawler, was hauling nets on the Grand Banks of Newfoundland. The standard practice aboard this vessel was to wait until the deck was clear of personnel and the preventer chains secured, before the trawl drums were declutched. Due to the design of the vessel, the winch operator could not see the complete afterdeck working area and, without ensuring that the preventer chains were secured, he prematurely declutched the drum. As the door started to fall, he reclutched the drum but the door continued falling further until the cogs re-engaged.

A deck-hand, eager to prove himself, had stepped outside of the wire pennant when the trawl door was hauled up close. He then reached overboard to unshackle the pennant from the door legs and hook up the ground wire. As the door fell and the strain came on the wire pennant, he was thrown overboard.

A lifebuoy was thrown over the side and a liferaft was launched to rescue the man, but before they could reach him, he sank out of sight while attempting to swim towards the thrown lifebuoy. His body was not found in the ensuing search.

Causes

Contributing factors to the accident and death were:

- the imprudent action of the victim in positioning himself outboard of the wire pennant;

- the premature declutching of the trawl drum;

Case 2 (cont'd)

- the launching of a liferaft instead of a boat which delayed the rescue attempt; and

- the victim was not wearing any form of flotation device.

Case 3

At 1700 on January 13, 1976, Vessel C, a 14.5 gross ton vessel was lobster-fishing in the Bay of Fundy, N.S. As a deck-hand was setting the pots, the trawl line attaching the twenty traps fouled and when the operator left the wheel to free it, a loop in the line got caught around his leg and the operator was pulled overboard. The vessel was proceeding at slow ahead. All attempts by the deck-hand to ease the strain on the line or haul the trawl with the trap hauler were unsuccessful.

The deck-hand managed to cut the line and manoeuvre alongside the operator but the former's attempts to gaff the latter's clothing were unsuccessful and the operator sank out of sight. The victim was not found in the ensuing search.

Causes

Contributing factors to the accident and death were:

- due to economic reasons, the owner had recently reduced the vessel's complement from three to two persons;

- the knife used to cut the trawl line was located in the fore part of the vessel, and retrieving this knife resulted in loss of valuable time; and

- the victim was not wearing any form of flotation device.

Case 4

At 0030 on April 5, 1976, the crew of Vessel D, a 672 gross ton stern-trawler, was called out to unship the stern doors and land them on deck, ready for their repairs in Catalina, Nfld. The intention was to take up the port door first and in preparation, a deck-hand removed the port door preventer chains, then the starboard door preventer chains and stood under the gallows adjacent to the bulwark, awaiting the hooking up of the starboard gilson. The starboard door suddenly dropped into the water dragging its door extension wire and 'G' hook along the deck until they snagged on a spare gilson coiled on a nearby cleat. The wire became taut and catapulted the deck-hand over the stern. He was not found in the ensuing search.

Case 4 (cont'd)

It appears that after the starboard preventer chain was removed, the brake of the winch slipped when the main warp was declutched, causing the door to fall into the water. The brake had a history of slipping when it was wet.

Causes

Contributing factors to the accident and the death were:

- the victim's over-eagerness to remove the starboard preventer chains before they were necessary, and his carelessness in standing outboard of the wire pennant;

- the imprudent action of the winch operator in declutching the main warp drum with the preventer chains off, when the brake was known to slip when it was wet; and

- the victim was not wearing any form of flotation device.

Case 5

At 0335 on June 10, 1976, the crew of Vessel E, a 748 gross ton stern-trawler, fishing on the Grand Banks of Newfoundland, was preparing to dump some sharks brought on board in the recent haul. The standard procedure was to pull them on a hydraulically operated wave trap located on the trawl ramp using a scrap metal strap and a yo-yo hook, and then let them slide overboard by further lowering the trap. The straps were always jettisoned with the sharks.

For some reason, a deck-hand, familiar with the standard procedure, decided to retrieve the straps. The operator, not seeing the deck-hand, lowered the wave trap thereby causing the deck-hand and the dead sharks to go overboard. The vessel's speed was 4 knots. In the ensuing search, the dumped sharks and the lifebuoys thrown in the water were found despite the fog, but the body of the victim was not. He was wearing a plaid shirt, pants, and long rubber boots.

Causes

Contributing factors to the accident and death were:

- the victim failed to follow the standard procedure by going to retrieve the straps;

- the reduced visibility hampered the search; and

- the victim was not wearing any form of flotation device.

Case 6

On the night of November 12, 1976, Vessel F, a 652 gross ton stern-trawler, was trawling on the Grand Banks of Newfoundland. When fishing, due to the limited working space on deck, the vessel's winch hauls the floats and net on board, as far as it can, and quarter ropes, connected to the net by brummel hooks, haul in the remainder.

The quarter ropes are tended and passed clear of obstructions when discharging the trawl. At the time of the incident, the port side brummel hooks parted and the quarter rope entwined itself around a deck-hand's legs, and, despite the safety line across the ramp, he fell onto the trawl ramp and slid down into the water.

After the ensuing search, Vessel F dragged for and recovered the body of the victim.

Causes

Contributing factors to the accident and the death were:

- the victim did not demonstrate more caution when working in this dangerous area on deck, even though it was not an uncommon occurrence for the quarter rope or brummel hooks to part; and

- the victim was not wearing any form of flotation device.

Case 7

On December 4, 1976, Vessel G, a 650 gross ton stern-trawler, was steered by autopilot and hove-to on the Grand Banks of Newfoundland as fishing had been stopped the previous night due to bad weather forecast. At 1745, it was noticed that although the trawl doors had been secured to the gantry, they had become loose. The crew was turned to and instructed to take in the doors and re-secure them in their 'keepers'. The port door had been secured and while attempting to secure the starboard door, the vessel shipped a large sea injuring one person and carrying another overboard. After securing the door and removing the injured person to safety, the vessel was being turned downwind to commence a search, at which time, another large sea shipped on board the vessel and carried away the lifeboat and the lifebuoy from the port side. Neither the lost crewman nor the equipment was found in the ensuing search. The victim was wearing heavy oilskins and rubber boots.

Causes

Contributing factors to the accident and the death were:

Case 7 (cont'd)

- the doors were not brought inboard, nor were they well secured before the vessel was hove-to;

- the vessel was not on manual steering as the doors were being brought inboard;

- a lit lifebuoy was not thrown in the water when it was realized that a crew member had been washed overboard; and

- the crew on deck were not wearing any form of safety harnesses or flotation devices.

Case 8

On June 19, 1978, Vessel H, a 28 gross ton seiner, departed Alder Point, N.S., for the fishing grounds with the skipper and a deck-hand on board. At noon, it was decided to steam to another location. Without informing the skipper, the deck-hand went on deck as they neared the chosen spot and shortly after, the skipper noticed that the deck-hand was missing. He was not found in the ensuing search. The victim was wearing a wet weather suit.

Cause

Contributing factors to the accident and the death were:

- the operator was not immediately aware when the deck-hand fell overboard as the latter proceeded on deck without informing the operator; consequently valuable time was lost in commencing SAR operations;

- the visibility was reduced in fog patches and this hampered the search; and

- the victim was not wearing any form of flotation device.

Case 9

At 1920 on November 25, 1978, Vessel I, a 43 gross ton seiner, departed Vancouver, B.C., bound for the salmon fishing grounds at Qualicum with the skipper and three deck-hands on board. The skipper turned in at 2100 as did one of the two deck-hands who was not on watch, while the second deck-hand sat in the galley reading, awaiting change of watch.

At 2120, the deck-hand who had turned in walked through the galley and out on to the afterdeck, possibly to relieve himself over the side. When he did not return, his shipmate went to look for him. He was not found in the ensuing search.

Case 9 (cont'd)

The victim had consumed some alcohol before and after he joined the vessel but he had not been considered drunk by his shipmates. There were adequate toilet facilities on board but they were not in use at the time of the incident.

Causes

Possible contributing factors to the accident and the death were:

- the victim relieved himself over the side when there were adequate toilet facilities on board;
- the victim had consumed alcohol; and
- the victim was not wearing any form of flotation device.

Case 10

On February 16, 1979, Vessel J, a 835 gross ton stern-trawler, departed Grand Bank of Newfoundland, bound for the Funk Island Bank with a crew of 13 on board. During the night of February 17/18, the vessel had shipped occasional seas and small ice pans resulting in an ice build-up. At 0650, February 18, four crew members went on the forecastle to remove the ice build-up. The vessel was maintaining bare steerage-way and it had been about two hours since the last sea had shipped over the bow. There were no safety lines rigged forward and the men were not wearing lifejackets or safety belts. At 0700, the vessel shipped a large sea, washing two persons heavily against the bulwarks and railings whilst the other two persons were washed overboard.

One person was lying face down in the water and all attempts to hook his clothing with boat-hooks failed and he eventually sank. His body was never found. The other person kept afloat by holding onto a piece of ice and eventually a lifebuoy that was thrown near him; he was hauled aboard after spending an hour in the water.

Causes

Contributing factors to the accident and the death were:

- the ineffectiveness of using boat-hooks to effect the rescue of the victim;
- the elapsed time to effect the rescue of the men in the water; and
- no lifelines were rigged forward, and the men were not wearing any form of flotation device.

Case 11

At 1700, September 17, 1979, Vessel K, a 12 gross ton troller, departed Masset, B.C., bound for Prince Rupert with the owner/operator and a deck-hand on board.

Two hours later, when the deck-hand left the galley to determine the cause for the erratic 'full ahead/full astern' engine manoeuvring, he noticed the operator had been drinking and was told that the movements were being used to clear kelp from the propeller. The manoeuvring continued for about one-half hour until the operator, upon noticing that a headline had dropped off the foredeck, went forward to haul it in, leaving the engine in gear and running full ahead. The deck-hand went aft to retrieve the headline and, seeing the operator in the water holding onto the line, he rushed to the wheel-house and stopped the engine. He returned to the afterdeck and threw 3 lifejackets overboard but the operator was nowhere to be seen and was not found in the ensuing search.

It appears that the victim fell overboard while trying to retrieve the headline.

Causes

Contributing factors to the accident and the death were:

- the victim neglected to stop the vessel before trying to retrieve the headline;
- the victim had consumed alcohol; and
- the victim was not wearing any form of flotation device.

Case 12

On August 7, 1979, Vessel L, a 150 gross ton stern-trawler, departed Caraquet, N.B., for the fishing grounds in the Gulf of St. Lawrence with four persons on board. On August 9, while attempting to empty the cod end, a rope strop which was used on the hoist parted and the fall jammed. The deck-hand, in attempting to free the fall, jumped up and grasped the end of the parted strop, but it remained jammed and he was swung back and forth across the vessel until he fell into the sea. Before disappearing from sight, the victim had not attempted to struggle, call for help or reach for either of the two lifebuoys that were thrown to him. Vessel L searched the area for approximately two hours with negative results. As their MF transmitter was not operating properly, the master was unable to report the loss of the crew member until the following day, when the vessel arrived within VHF range; the vessel was en route to Caraquet.

Case 12 (cont'd)

The victim was known to be a non-swimmer. He was dressed in hip rubber boots, an ankle-length fisherman's coat, gloves and toque.

Causes

Contributing factors to the accident and the death were:

- the imprudent action of the deck-hand; and

- the victim was not wearing any form of flotation device.

Case 13

On the morning of August 18, 1980, Vessel M, a 6 gross ton wooden gillnetter, departed Prince Rupert, B.C., en route for Kitkatla, B.C., with the operator and 4 guests on board. Before their departure, some alcohol had been consumed during a picnic on board. The operator and one guest were below deck sleeping when another guest, for no apparent reason, started going back and forth between the vessel and a skiff being towed. While swaying, apparently under the influence of alcohol, he lost his balance and fell overboard. Another guest jumped in the water to assist him but was unable to reach him. The victim's body was not found in the ensuing search.

Causes

Contributing factors to the accident and the death were:

- the victim was going back and forth between the vessel and the skiff;

- the consumption of alcohol by the victim; and

- the victim was not wearing any form of flotation device.

Case 14

Vessel N, a 9 m (30 ft) wooden gillnetter, was engaged in gillnet fishing in the mouth of the North Arm of the Fraser River, B.C. On September 9, 1980, the vessel was discovered unmanned and entangled in her nets with the ignition and CB radio both switched off. The coolness of the engine block and the condition of the fish in the net when hauled, indicated the boat had been there for some time. In the extensive ensuing search, the body of the operator was not found. It appears that the victim fell overboard and drowned whilst attempting to free the vessel from her nets.

Case 14 (cont'd)

Causes

Possible contributing factors to the accident and the death were:

- the victim was fishing alone; and

- the victim was not wearing any form of flotation device.

Case 15

On the night of October 20, 1980, Vessel O, a 120 gross ton wooden seiner, shifted berth from the fuel dock to the cannery in Prince Rubert, B.C. One deck-hand was stationed on the foredeck and another on the port side with the skipper in the wheel-house.

Approaching the wharf, the deck-hand on the foredeck reached out to pass the spring line behind a piling. With the vessel still moving slowly ahead, he was caught between the next piling and the vessel's ratlines and was knocked overboard. The victim was only seen once and it appeared that his injuries and the weight of his boots prevented him from resurfacing. His body was found the following day.

Causes

Contributing factors to the accident and the death were:

- the imprudent action of the victim in leaning outboard to pass the line by hand when in close proximity of pilings with the vessel moving ahead; and

- the victim was not wearing any form of flotation device.

Case 16

On the evening of October 26, 1980, Vessel P, a 588 gross ton side-trawler, was hauling her nets on the Grand Banks of Newfoundland. The boatswain, standing on the starboard bow, was giving hand signals to the winchman. Two seamen, waiting to clear the net weight from the cable as it reached the bow roller, were standing on the port side. As the net cleared the water, the boatswain signalled the winchman to heave easy and as it neared the roller, the former signalled the winchman to stop. However, the net weight struck and damaged the roller causing the net cable to swing to port, throwing the two seamen over the side. One man was rescued but the body of the other was not found in the ensuing search. The victim was wearing a weatherproof coat and long boots.

Case 16 (cont'd)

Causes

Contributing factors to the accident and the death were:

- the delay by the winchman in stopping the winch before the weight struck the roller; and

- the victim was not wearing any form of flotation device.

Case 17

On January 5, 1981, Vessel Q, a 652 gross ton stern-trawler, departed Trepassey, Nfld., for the fishing grounds. At 2245, January 8, while shooting nets, the headline became entangled in the floats. The cod end was in the water but the trawl was on deck being held by a quarter line wrapped around a post forward and tended by one deck-hand. Two seamen were standing at the trawl trying to clear the headline when the stern of the vessel rose on a swell. The deck-hand could not hold the quarter line against the weight of the cod end and the trawl was pulled overboard taking one of the men with it. The body was not found in the ensuing search. The victim was wearing a heavy coat and rubber boots.

Causes

Contributing factors to the accident and the death were:

- the weight of the net being held inadequately by one line;

- the imprudent action of the men working in a dangerous position on the stern; and

- the victim was not wearing any form of flotation device.

Case 18

On June 30, 1981, Vessel R, a 122 gross ton wooden seiner, was salmon-fishing off Langara Island, B.C. The vessel's normal net deploying procedure involves a beachman, who secures the net to shore via the beachline, and a skiffman who ferries the beachman between the shore and the net. After Vessel R sets the net, the beachman, upon receiving a signal, lets go the beachline from shore. He is then picked up by the skiffman and together, they release the beachline from the net.

At the time of the incident, the skiffman went alone in the skiff to release the line from the net on the vessel's whistle signal. Whilst leaning overboard to let go the quick-release mechanism, he fell into the water. His body was not found in the

Case 18 (cont'd)

ensuing search. The victim was wearing a long, black raincoat and 3/4-length rubber boots. He was known to be a non-swimmer.

Causes

Contributing factors to the accident and the death were:

- contrary to the accepted shipboard practice, the victim released the beachline alone; and
- the victim was not wearing any form of flotation device.

Case 19

On the morning of September 8, 1981, Vessel S, a 52 gross ton wooden fishing vessel, was dragging for scallop off Gullivers Hole, N.S., with the skipper and three deck-hands on board.

The vessel was steaming at full speed and paying out the tow-cable. A deck-hand, armed with a boat-hook, was standing by aft, ready to pick up the slack as soon as the rake hit the sea bottom, and to put the cable in the messenger block of the gallows.

The skipper saw the deck-hand place the cable in the block and the winchman saw his legs disappearing over the side. When the cable slipped from the block, the victim grabbed it with the boat-hook and, with the increasing tension on the line, he was pulled overboard. The deck-hand managed to get hold of one of the lifebuoys thrown, but it slipped away from him. He did not grasp the other lifebuoy or the bowline that was thrown nearby. In the ensuing search, his body was not found.

He was known to be a non-swimmer.

Causes

Contributing factor to the death was:

- the victim not wearing any form of flotation device.

Case 20

On June 3, 1982, at 1400, Vessel T, a 4.9 m (16 ft) open boat, departed Englee, Nfld., with two persons on board, to haul nets. Later that afternoon, another fishing vessel stopped alongside the Vessel T to ensure that everything was alright and noticed that the boat had only a few inches of freeboard, was heavily laden with fish, and that water was splashing over her stern. The two men in Vessel T informed the skipper of the

Case 20 (cont'd)

inquiring vessel that they intend to haul another net before returning to port. That evening, when Vessel T had not returned, a search was conducted. The next morning, the boat was found swamped with the two bodies on board. It was later determined that one person had died of exposure, and the other of exposure and drowning. Both persons were wearing heavy clothing. No lifejackets, flares or bailing buckets were found on board, nor was there any evidence indicating that they had been carried aboard.

Causes

Contributing factors to the accident and the death were:

- the overloading of the boat;
- there were no flares on board whereby the vessel could have indicated her distress; and
- the absence of bailing buckets precluded the bailing of the boat, which could have prevented the occupants from being immersed in cold water.

Case 21

On the morning of June 18, 1982, Vessel U, an 8 gross ton wooden fishing vessel, departed Havre Aubert in the Magdalen Islands, Que., to haul lobster pots and place others south-west of l'Île d'Entrée. The operator and a deck-hand were on board, both experienced lobster fishermen.

In the process of hauling a pot, the deck-hand leaned on a trap overhanging the rail of the boat and the trap along with the deck-hand fell overboard, carrying with them other pots, lines and markers that were on the deck.

The deck-hand became tangled in the marker buoys and lines of the traps and could not reach the lifebuoy that was thrown to him. He struggled free but quickly sank to the bottom. His body was recovered in the ensuing search. The victim was known to be a non-swimmer.

Causes

Contributing factors to the accident and the death were:

- the unsafe practice of allowing the lobster traps to overhang the rail; and
- the victim was not wearing any form of flotation device.

Case 22

On the morning of September 8, 1982, Vessel V, an 8 gross ton fishing vessel, departed Sointula, B.C., en route for Alert Bay with the owner/operator and owner/deck-hand on board. Shortly after departure, the deck-hand left the wheel-house and proceeded on deck to haul in the fender hanging over the side; she did not return. In the ensuing search her body was found. The autopsy revealed the cause of death to be drowning.

It appears that Vessel V hit a tide rip and the victim lost her balance and fell overboard. The line serving as a handrail was not in place.

Causes

Contributing factors to the accident and the death were:

- the absence of the line used as a handrail; and

- the victim was not wearing any form of flotation device.

Case 23

On March 12, 1983 at 0400, Vessel W, a 12 gross ton wooden fishing vessel used for handlining, departed Campbell River, B.C., for Alert Bay with four persons on board. At 0430, the operator was at the wheel, the mate was forward acting as look-out and the deck-hand and a guest were sitting on the afterdeck drinking.

As there were no toilet facilities on board, the deck-hand went to relieve himself over the starboard side aft, lost his footing and fell overboard. In the ensuing search his body was not found. The victim was known to be a non-swimmer and was wearing boots, jeans and a leather jacket.

Causes

Contributing factors to the accident and the death were:

- the consumption of alcohol by the victim;

- the lack of toilet facilities on board necessitating in the victim having to relieve himself over the side; and

- the victim was not wearing any form of flotation device.

Case 24

On December 27, 1983, Vessel X, a 13.5 gross ton fishing vessel, departed Ingomar wharf, N.S., to haul lobster pots.

Case 24 (cont'd)

The owner, the sole occupant of the boat, was later seen by another fisherman coiling a cable amidships.

Vessel X was later found drifting and unmanned, with the engine running, but in neutral. A search conducted by the RCMP, Search and Rescue, and local fishermen failed to find the body of the victim.

It is thought that the victim went first to haul his bait net. The anchor, marker buoy and cable were found on board and deep score marks were found on the forward deck under the anchor indicating it had been dropped or moved violently. There were no guard-rails on the vessel and with the vessel's rolling, possibly the victim lost his footing and fell overboard. When last seen, the victim was not wearing a PFD or a lifejacket.

Causes

Possible contributing factors to the accident and the death were:

- the vessel did not have guard-rails;
- the victim was fishing alone; and
- the victim was not wearing any form of flotation device.

Case 25

On March 9, 1984, Vessel Y, a 3 gross ton combination gillnetter used for fishing, beachcombing and as a live-a-board, departed Port Hardy, B.C., for the fishing grounds with one person on board and in the company of another fishing vessel.

En route, while waiting for the weather to abate, both vessels anchored in the lee of Cox Island and then combed the surrounding beaches. During the evening of March 11, when returning to their vessels in a dinghy, the owner/operator of Vessel Y stripped off his clothes and decided to swim the remaining short distance to his vessel. His friend, left alone bailing and rowing in an adverse current, managed to manoeuvre the dinghy onto the beach where he spent the night. The next day he could not find his friend. Search and Rescue and the RCMP were unsuccessful in finding the body.

Causes

Contributing factors to the accident and the death were:

Case 25 (cont'd)

- the imprudent action of the victim in attempting to swim to his vessel in adverse current; and

- the victim was not wearing any form of flotation device.

Case 26

After the day's fishing, on May 5, 1984, Vessel Z, an 11 gross ton gillnetter with an operator and two deck-hands on board, was heading into Prince Rupert, B.C.

At 2240, one deck-hand was asleep and the other was engaged in washing down the decks. The latter informed the operator who was in the wheel-house that he was going to wash his boots and gloves before finishing for the day.

A short time later, the operator realized that he could not see the deck-hand. After slowing down and searching the vessel, the operator advised CGRS Prince Rupert. A search was conducted but the body of the victim was not found.

Earlier that day, the starboard splash boards had been removed to aid in the landing of the catch and it is thought that while filling the over-the-side bucket for washing his boots, the victim was pulled overboard through this gap. The victim was wearing rubber boots, heavy trousers and several shirts.

Causes

Contributing factors to the accident and the death were:

- the splash boards had not been replaced after landing the catch;

- the victim's imprudent action of filling a bucket over the side while the vessel was underway; and

- the victim was not wearing any form of flotation device.

Case 27

Vessel A1, a 193 gross ton wooden scallop dragger, departed Lunenburg, N.S., on June 5, 1984, bound for Georges Bank. The crew worked six-hour watches when at sea. On the night of June 10 during the 0000-0600 watch, the master, while walking through the cabin en route to the shucking house, noticed that a deck-hand was missing from his bunk. A search was initiated but the deck-hand was not found.

Case 27 (cont'd)

Vessel A1 and another fishing vessel searched the surrounding area but the body of the victim was not found. It is not known how the victim disappeared. All life-saving appliances including lifejackets were accounted for after the victim was discovered missing.

Causes

A contributing factor to the death was:

- the victim was not wearing any form of flotation device.

Case 28

Vessel B1, a 16 gross ton wooden Cape Sable Islander, departed Cape St. Mary, N.S., on December 20, 1984. On board were the owner/operator and two deck-hands. Upon returning to port that afternoon, while preparing to tie up the vessel, the deck-hand stationed aft, informed the deck-hand forward that he had to relieve himself over the side.

Upon approaching the wharf, the skipper noticed that the deck-hand on the afterdeck was missing. He stopped the vessel and searched for the missing deck-hand but the victim's body was not found.

Lacking toilet facilities on board, the crew usually relieved themselves over the afterdeck port side, from a position not visible from the wheel-house. In this position, there were no handholds or non-skid material on the deck.

With the noise of the engine, any call for help would not have been heard. Likewise, the forward deck-hand's hearing was hindered by his cap and the roar of the relative wind.

Over a heavy woollen sweater, jeans, and rubber boots, the victim was wearing oilskin trousers.

Causes

Contributing factors to the accident and the death were:

- having no toilet facilities on board the vessel necessitated in the victim relieving himself over the side; and

- the victim was not wearing any form of flotation device.

Case 29

On April 29, 1985, Vessel C1, a 28 gross ton longliner, was

Case 29 (cont'd)

engaged in fishing off Egg Island light buoy. She had a crew of 3 and 1 guest on board. After landing her catch from this area at Sambro, N.S., the vessel proceeded towards Bickerton Bank and arrived there at about 0245, April 30.

In light north-north-easterly breeze and calm seas and, with the portable side door in the slaughterhouse in an open position, the vessel headed in a north-north-easterly direction at about 2 knots. The vessel was neither rolling nor pitching and two deck-hands were engaged in a conversation near the hatch. Shortly after 0335, both deck-hands headed towards the wheel-house. As one of the deck-hands descended the steps from the deck to the slaughterhouse, he somehow lost his footing and fell sideways through the starboard opening. An alarm was immediately raised, the boat turned about and a searchlight was played on the water. The victim was located with the searchlight and efforts were made to retrieve him, using a short gaff. This proved unsuccessful and a longer gaff was sought. When this was brought, the victim had disappeared. Further efforts to locate him were unsuccessful and the victim was never found.

Causes

Contributing factors to the accident and the death were:

- residual fish scale on the wet deck probably produced a slippery surface;
- the portable side door in the slaughterhouse was left open; and
- the victim was not wearing any form of a flotation device.

Case 30

Vessel D1, is a 12 gross ton, 10.36 m long, wooden Cape Sable Islander designed primarily for lobster fishing. On May 8, 1985, at about 0455, the vessel departed Clark's Harbour with only the operator, bound for the lobster fishing ground located some 4 to 5 miles south-west of the harbour. At her estimated speed of 8 knots, the vessel would have arrived at the fishing grounds around 0615. By this time it was daylight and shortly thereafter the operator started to haul and reset the lobster traps.

At about 0945, another fishing vessel passed close to the Vessel D1 and the former not having seen anybody on board the Vessel D1 went alongside her. A short while later, the Vessel D1, was boarded and nobody was found aboard her. An extensive search

Case 30 (cont'd)

of the area by a number of vessels failed to locate the victim.

In the absence of any survivor, it is thought that the operator, whilst engaged in resetting lobster traps, met with an accident which caused him to fall overboard and he subsequently died due to the effects of hypothermia and/or drowning. The victim was wearing seasonal clothes, winter jacket, rubber boots and oilskin pants but was not wearing any form of flotation device.

Causes

Contributing factors to the accident and the death were:

- the vessel was manned by a single person; and
- he was not wearing any form of flotation device.

Cause 31

At about 0510, June 16, 1985, two fishermen left their homes in Robichaud, N.B. They boarded their Dory E1 and proceeded to check the fishing nets, located upriver, a short distance from the bridge spanning across Kouchibouquet River. At about 0720, a local resident noticed the fisherman's truck parked near the beach and the Dory E1 aground at the opposite side of the bay but did not see any fishermen around. He then had a coffee, returned to the beach and proceeded to check the dory. Upon his arrival at the dory, he found that the outboard motor was suspended over the side and held there only by the gas line. At about 1030, the bodies of the two fishermen were found a short distance from the wharf.

The victims who ordinarily wore work clothes with knee high rubber boots were without boots when their bodies were recovered. It would appear that when the improperly secured outboard motor became unseated, the two fishermen lunged for the motor and fell overboard in the process.

Causes

Contributory factors to the accident and the death were:

- the outboard motor was improperly clamped and with no security cable attached; and
- the victims were not wearing any form of flotation device.

Case 32

The 11 gross ton Vessel F1 was a wooden fishing vessel

Case 32 (cont'd)

11.28 m long and was manned by a crew of 2. At the end of the gaspereau fishing season in the Miramichi River, the vessel proceeded to the fishing grounds to dismantle the net installation. She secured alongside one of the poles. In the process of dismantling this installation, when both fishermen leaned over the side to get to one of the poles, the pole to which the vessel was secured came free and both crew members fell overboard, one into the net and the other clear of the net. The fisherman in the net was able to get to one of the dories which was secured to the vessel's stern whilst the other fisherman sank out of sight; the time was about 1530. The victim's body was recovered by RCMP divers some 5½ hours later. The victim was wearing normal work clothes and oilskins.

Causes

Contributing factors to the accident and the death were:

- no protection or precautions were taken prior to commencing to dismantle the net;
- the end of the pole to which the vessel was secured accidentally became loose before the dismantling operation was completed; and
- both fishermen were not wearing any form of flotation device.

Case 33

The 5 gross ton Vessel G1 was a wooden lobster fishing vessel 8.6 m long and was crewed by one person. She departed Boudreauville, Que., at about 0500 on July 4, 1985 bound for the fishing grounds in Bay of Rocks. The operator was last seen at about 0615 and at about 0900 his boat was found ashore with the engine running in neutral, the hydraulic winch turning but no sign of the operator. Extensive search of the area was carried out and the victim was eventually located on the bottom near the lobster pots. His body was recovered at about 1910. The blood alcohol level of the victim was above the permissible limits for an operation of a vessel as laid down in the Criminal Code of Canada. The victim was wearing pants, shirt and windbreaker jacket.

It would appear that the victim possibly lost his balance and fell overboard due to faulty planking underfoot whilst reaching to gaff the lobster pots.

Case 33 (cont'd)

Causes

Contributing factors to the accident and the death were:

- the victim's intoxicated state;
- the victim's heavy clothing;
- the cold water conditions; and
- the victim was not wearing any form of flotation device.

Case 34

The 8 gross ton Vessel H1 was 8.53 m long, constructed of fibre glass and was manned by a single crew member. The vessel departed Caspaco Wharf in Inverness Passage and upon reaching the fishing grounds, the Vessel H1 was observed to make her first set at 1800, July 7, 1985 in the vicinity of Boneyard Bar. The following day at about 0635, he was last observed making a set off the bar towards Mowitch Point. Shortly after 0730, another fishing vessel found that the Vessel H1 was drifting into more shallow waters and that there was no apparent activity on board. Upon the fishing vessel's arrival alongside Vessel H1, no one was found aboard the latter and the net had been in a partially recovered position.

An extensive search of the area was carried out and at 1340, the victim was sighted inside Boneyard Bar. The victim was wearing appropriate work clothes for the cool weather when his body was recovered.

Causes

Contributing factors to the accident and the death were:

- the victim lost his balance and fell overboard;
- the victim sustained a blow to the head either before or whilst falling overboard; and
- the victim was not wearing any form of flotation device.

Group 2 - Machinery/Equipment Related

Case 1

At 0015 on September 23, 1975, Vessel A2, a 650 gross ton stern-trawler, was hauling nets on the Grand Banks of Newfoundland. When the catch was in, it was noticed that the starboard towing warp was becoming unravelled at the splice. With the decision made to re-splice the warp, the door was hung off the stern by using dog chains.

There was one man on the starboard quarter giving hand signals to the master who was operating the remote winch controls located in the wheel-house. The deck-hand had mistakenly threaded the dog chain through only one bracket of the door and, when the wire was slackened, it jammed the warp shackle so it could not be released. To reposition the chains, the deck-hand motioned that the door be hove tight again, when suddenly the door tripped, swinging inboard over the rail striking and pinning the deck-hand momentarily to the rail. He died shortly thereafter, whilst the vessel was en route to Trepassey, Nfld.

Causes

Contributing factors to the accident and the death were:

- the design defect in the securing arrangement of the trawl doors which enabled the door to trip. This defect has since been corrected; and

- the individual's failure to recognize a potentially dangerous situation after threading the dog chain through only one trawl door bracket.

Case 2

On November 18, 1980, Vessel B2, a 370 gross ton trawler, was hauling her trawl on Banquereau Bank off Nova Scotia. The net was on board and the crew was lifting the heavily laden cod end using the starboard auxiliary winch. The deck-hand manning the winch, dressed in a plaid jacket, rubber overalls and rubber work gloves, had to surge the turns on the drum due to the heaviness of the load. He was discovered on the winch drum with the turns of the lead around his body.

It is thought that while 'walking out' the turns, his right glove became caught and when attempting to reach under the lead to stop the winch, his arm became entangled, carrying him around the drum and throwing his legs into the turns.

Case 2 (cont'd)

Causes

Contributing factors to the accident and the death were:

- clothing being caught in moving machinery; and

- the imprudent action of the victim in reaching under the lead to turn off the winch, instead of throwing off his glove.

Case 3

On June 24, 1979, Vessel C2, a 114 gross ton seiner, was fishing in Rennell Sound, B.C. As the net was being hauled, the deck-hand in charge of the seine was standing in front of the starboard davit when the davit suddenly swung inboard, striking him in the chest and throwing him backwards. He hit the back of his head on the pursing winch and was killed instantly. Upon examination of the davit, it was discovered that the locking pin had sheared off.

Causes

Contributing factors to the accident and death were:

- the locking pin shearing off allowing the davit to swing inboard; and

- the victim was not wearing a hard hat.

Case 4

On July 2, 1981, Vessel D2, a 666 gross ton stern-trawler, departed Burin, Nlfd., for the fishing ground. The engine-room staff consisted of two engineers, standing six-hour watches.

On July 4, the chief engineer called the second engineer for watch at 1215 and when he reported to the engine-room at 1245, he could not see the chief engineer. He noticed, however, that the deck gratings over the tail shaft were not in position. These were only lifted to effect repairs on the pitch block cooling system. Upon investigation, he found that the chief engineer was bent over the water pipe with his head immersed in the bilge water.

He stopped the engine, started the bilge pump and, having tried unsuccessfully to lift the chief engineer, went for help. The chief engineer was dead when his body was finally freed.

It appeared that while replacing a clamp on the pitch block

Case 4 (cont'd)

cooling pipe, the victim's clothing became caught on the protruding nuts and bolts of the nearby shaft coupling and he was thrown against the grating above.

Causes

Contributing factors to the accident and the death were:

- the chief engineer failed to stop the main engine while working in close proximity to the rotating shaft; and
- clothing became caught in moving machinery.

Case 5

On August 5, 1981, Vessel E2, a 192 gross ton scallop dragger, departed Lunenburg, N.S., for Georges Bank. While hauling the starboard rake at 0110, August 13, it was noticed that a shackle holding the sweep chain had come off. To fit a new shackle, the lower part of the rake is placed on board the vessel and the drag part hung partially over the side to prevent the rake from falling inboard, should it become unhooked. Before it could be positioned, the vessel rolled and the rake came in contact with the rail. The rake unhooked from the fall and momentarily balanced itself on the rail.

At this time, a deck-hand, aft of the rake and safely positioned, stepped forward and started to run forward into danger when the other deck-hands called their warning. The rake fell inboard, striking the man across the back. He died shortly after from the multiple injuries sustained.

Causes

Contributing factor to the accident and the death was:

- the imprudent action of the victim, in running into danger when the rake fell inboard.

Case 6

On the morning of May 13, 1982, Vessel F2, a 67 gross ton wooden side-trawler, departed Newport, Quebec, en route for the fishing grounds with the skipper and three deck-hands on board.

During the winter, the main mast and all rigging except one shackle had been replaced. This shackle which attached a block to a wire from the mast-head, had very worn threads and a badly corroded crown. The crew had commented on its condition but the skipper had disregarded it.

Case 6 (cont'd)

After the net and floats were overboard, the skipper decided to put the after trawl board in the water first. Attached to the board hinges by a cargo hook, the heavy board was lifted by a line run from the winch located aft, and led through the block forward in the rigging, to the aft gallows. The skipper was handling the line and as the strain was taken on the winch drum, the shackle gave way and the block was flung aft, striking the skipper in the back of the head, killing him instantly.

Causes

Contributing factors to the accident and the death were:

- the failure of the skipper to replace an obviously worn shackle; and

- the victim was not wearing a hard hat.

Case 7

On June 7, 1982, Vessel G2, a 629 gross ton stern-trawler, departed Halifax, N.S., for Browns Bank. The fishing was good and the crew were working long hours. At approximately 2030, June 8, when hauling a trawl, the captain, noticing the diminished size of the haul, thought the net might have been holed. To inspect it, the net had to be lifted using a wire rope led from the starboard yo-yo winch through a swivel block on the starboard side of the gallows.

One man operated the winch and handled the wire but, while in this position, he couldn't be seen by those in the wheel-house. The crew on deck were not looking towards him. It was suddenly realized that he had been caught and pulled around the winch warping drum. He died of the injuries sustained.

Causes

Contributing factors to the accident and the death were:

- the victim was operating the winch alone, from a position that could not be observed;

- the clothing was caught in moving machinery;

- the victim suffered from fatigue due to the long hours worked; and

- imprudent action on the part of the victim to attempt to clear a foul on the warping drum while it was turning.

Case 8

On August 1, 1982, Vessel H2, a 214 gross ton scallop dragger, departed St. John's, Nfld., to conduct scientific research on the Grand Banks of Newfoundland with a crew of 16 and 6 research personnel on board.

While towing the starboard gear at approximately 4 knots on the afternoon of August 7, it became caught on the sea bottom and the winch brake began to slip. As the master attempted to stop the vessel and the winchman tightened the brake, the brake operating rod anchoring bolt of the winch tore free and struck the winchman in the head, killing him instantly. The runaway cable tore the plywood winch-house off the deck. The fishing gear had not been altered since the vessel had been built. During a laboratory examination, it was discovered that there were three unused holes cut in the frame, near the break operating rod attachment, and the break operating rod itself was not secured as shown on the plans. A long-existing crack ran through all the above holes.

Causes

Contributing factors to the accident and the death were:

- the failure to carry out routine inspection and/or to report the condition of, important deck machinery;

- the presence of the holes and the location of the brake operating rod 'hole' reduced the strength and load-carrying capacities of the winch frame. This promoted the formation of fatigue cracking which resulted in the winch bed frame failing under a normal operational load; and

- the victim was not wearing a hard hat.

Case 9

On January 7, 1983, Vessel I2, a 46 gross ton herring seiner, departed Ingall's Head Harbour, Grand Manan Island, N.B., for the scallop grounds. The vessel was converted to a scallop dragger for the season, and had a plywood shucking house along the port side. The rake was brought on board by a wire run from a hydraulic winch on the port after side, through the shucking house and across the foredeck to the gantry on the starboard side. The vessel averaged three drags per hour as the winch, initially controlled by the skipper from the wheel-house, hauled between 40 to 60 fms/min. The deck-hands, between the retrievals of the rake, processed the catch in the shucking house.

At 1400, as the skipper was hauling in the rake, he saw a

Case 9 (cont'd)

deck-hand pass a bucket through a window of the shucking house followed immediately by the slowing down of the winch. A short while later it was discovered that the deck-hand had been pulled into the winch. The crew tried unsuccessfully to remove his body as the vessel returned to port.

There were no witnesses, but it appears that the victim's right leg had become entangled as he reached over the moving wire. He was wearing ski boots, jeans, a shirt and a jacket topped with rubber-bibbed overalls.

Causes

Contributing factors to the accident and the death were:

- the operation of the winch from a position where the winch area could not be observed;
- the dangerous working area created by the unprotected winch wire running through the shucking house; and
- the imprudent action of the victim in reaching over the moving wire.

Case 10

On May 26, 1983, Vessel J2, a 588 gross ton side-trawler, left St. John's, Nfld., for the fishing banks. On June 22, while heaving the cod end, the shackle at the end of the net became jammed on the ship's side. The boatswain, standing alone on the port side giving signals to the winchman, ordered an increase in winch speed to free the shackle. A pulley welded to the mast broke and the boatswain was crushed between the rope holding the full weight of the cod end and the bulwark.

During the investigation, a considerable amount of corrosion was found in the area of the broken pulley.

Causes

Contributing factors to the accident and the death were:

- the failure to routinely inspect stressed deck fittings and correct the effects of corrosion; and
- the failure of the pulley when further stressed to free the cod end shackle.

Case 11

Vessel K2, a 14.5 gross ton Cape Islander, departed Woods Harbour, N.S., on the morning of November 29, 1983, to haul lobster pots, with the skipper/owner and two deck-hands on board. The vessel had two submersible electric bilge pumps with open impeller suctions, mounted aft directly in the vessel's bilge, under the propeller shaft. To clear debris from the impeller suctions, the skipper usually lay on the deck and reached through an open hatch to the suctions. En route to the last pot, the skipper proceeded to clear them again.

Moments later, the helmsman felt a thump; he slowed the engine immediately and upon investigation discovered that the skipper was caught around the vessel's propeller shaft.

The victim was wearing wet weather gear over insulated coveralls. It appears that he was killed instantly when his clothing became entangled in the rotating shaft as he tried to clear the suctions and was pulled through the open hatch and around the propeller shaft.

Causes

Contributing factors to the accident and the death were:

- the victim's imprudent action in clearing the bilge suctions by reaching under the rotating shaft; and
- loose clothing became caught in moving machinery.

Case 12

On October 6, 1983, Vessel L2, a 13 gross ton dragger, departed Little Port Harmon, Nfld., for the scallop grounds with the operator and deck-hand on board.

Later that morning, while the deck-hand was shucking scallops on the afterdeck, the operator went to check the transmission fluid level of the engine by pulling the dip stick. The vessel was dragging at 2-3 knots with the engine at 1400 r.p.m. at the time.

The deck-hand saw the operator being pulled through the small deck opening and around the transmission drive shaft. It appeared that after replacing the dip stick, some of the operator's clothing became caught on the protruding transmission coupling bolts. The autopsy indicated that the victim died due to crushing injuries to the head, neck and chest.

Case 12 (cont'd)

Causes

Contributing factors to the accident and the death were:

- the imprudent action of the operator in working around the rotating transmission shaft; and

- the loose clothing became caught in moving machinery.

Case 13

At 0600 on October 25, 1984, Vessel M2, a 10 m wooden gillnetter, solely manned by the owner, departed Port Daniel Wharf, Que., to haul nets.

Another fishing vessel found her later that day drifting and unmanned with her engine running in neutral, with the winch running but the drum not turning and the fish-filled nets wound tightly on the drum.

The vessel was towed into Port Daniel. That afternoon, the operator's body was discovered under the nets.

Apparently, he became entangled in the nets while removing the catch. When the net weights reached the drum, the drive shaft pin sheared, stopping the rotation of the drum.

Causes

Contributing factors to the accident and the death were:

- the controls were not suitably located to allow for a one-man operation;

- the dangerous practice of allowing the winch drum to run continuously with the winch controls unmanned while removing fish from the net; and

- the imprudent operation by the individual.

Case 14

The 43 gross ton Vessel N2 was a drum/purse seiner, 17.13 m long and was manned by a crew of 5. The vessel commenced fishing close inshore in Boat Harbour, B.C. on July 23, 1985. At about 1740, while hauling in the seine net with a small catch of salmon, a shipside davit fitted with a tackle and used in the process came loose, swung inboard and struck a crew member in the chest. The crew member collapsed and died shortly thereafter as a result of the impact of the blow he had received.

Case 14 (cont'd)

Causes

Contributing factors to the accident and the death were:

- the davit was not properly maintained;
- the davit was not properly operated; and
- the deceased was standing or was attracted to perform some urgent task, in the 'bight' of the purse line.

Group 3 - OTHER/GENERAL

NOTE: Some cases involving drowning are contained in this section and these illustrate some of the diverse circumstances leading up to death by drowning.

Case 1

On July 7, 1978, Vessel A3, a 109 gross ton fishing vessel, departed Shelburne, N.S., for the fishing grounds. On July 14, while carrying some fishing equipment aft, a deck-hand slipped on the wet deck and fell on his back. He complained of a sore arm after the incident and could not get up the next morning. He was transported home on July 17 but the doctor could find nothing wrong. He complained of pains in his stomach, became bedridden, was transferred to the hospital on July 28 and died two days later.

Causes

A possible contributing factor to the accident and the death was:

- the victim slipping on the wet deck.

Case 2

On March 8, 1979, Vessel B3, a 44 gross ton wooden fish packer, anchored in Berkley Sound, B.C., was being used as a mother ship for skiffs gillnetting during the herring-roe season. After fishing was closed for the evening, some crew members took two skiffs, went ashore to Ucluelet and returned to the boats at 2230. Before leaving the harbour, one skiff broke down and was taken in tow by the other. Approximately one-quarter mile from Vessel B, the towing skiff ran out of fuel but after connecting another tank, the boats went alongside the vessel. On disembarking from the skiffs, the group noticed that a deck-hand was missing. He was not found in the ensuing search although a floater jacket, similar to one worn by the victim, was found.

While changing the fuel tanks, the operator of the towing skiff saw the victim sitting on the transom of the towed skiff. Due to their intoxicated state, the people in the two skiffs could not be questioned until the following day. It is believed that the victim fell backwards over the transom when the tow was resumed after changing the fuel tanks.

Causes

Contributing factors to the accident and the death were:

Case 2 (cont'd)

- the large amount of alcohol consumed by the victim and his shipmates; and

- the imprudent action by the victim to sit on the transom.

Case 3

On March 9, 1980, Vessel C3, a 6 gross ton gillnetter/ shrimper, departed for fishing off the North Arm, Fraser River, B.C., with the owner/operator and a guest on board. At 1800, the operator went below to rest leaving his guest to look after the vessel and fish boxes on the foredeck. When he awoke a while later, he was unable to find her on board. The victim was not located in the ensuing search but her body was found in her floater jacket, four days later, at Powell River.

It appears that while tending the fish boxes, the victim lost her balance and fell overboard. With the prevailing bad weather conditions and cold water temperature, she would have had little chance to survive for more than a few minutes.

Causes

Contributing factors to the accident and the death were:

- the victim fell overboard whilst working alone on deck;

- the poor weather and rough seas impeded the search; and

- the cold water left little chance of survival, even though she was wearing a floater jacket.

Case 4

On April 20, 1981, Vessel D3, an 8 gross ton gillnetter/ troller, departed Steveston, B.C., for the fishing grounds with the skipper and a young inexperienced deck-hand on board. The deck-hand was resting below deck and before dozing off, he saw the operator move towards the cabin door. A short while later, he awoke and went looking for him. Not finding him on board, he tried unsuccessfully to engage the hand steering and then resorted to stopping the engine.

The refrigerator on Vessel D3 was not operating properly and it is thought that the skipper went on deck to check the valve on its propane tank. The deck, freshly painted with high gloss paint containing no aggregate, was slippery, and with the roll of the vessel, the skipper could have lost his footing and fallen overboard.

Case 4 (cont'd)

During the search, a Coast Guard hovercraft found the victim, who later died in the hospital of hypothermia and cardiac arrest. During the autopsy, a high level of alcohol was found in the victim's blood. He was wearing an unzipped floater jacket.

Causes

Contributing factors to the accident and the death were:

- the high alcohol level in the victim's blood;
- having no previous sea experience, the deck-hand did not know how to handle the vessel; and
- use of high gloss paint without aggregate on the deck.

Case 5

On February 12, 1983, Vessel E3, a 684 gross ton stern-trawler, departed Halifax, N.S. bound for the Grand Banks of Newfoundland. The vessel was hove-to off the Cape Breton Island coast due to the prevailing and forecast weather conditions. Heavy pitching and rolling was experienced during the night and early morning of February 13.

The deck-hand on watch was relieved at 0400 and turned in, in the top bunk. He zipped his sleeping bag up to his chin but kept his arms inside. At 0500 the vessel hit a heavy sea and the man was thrown from his bunk, across the cabin and struck his head on the bulkhead before falling to the deck. He lay there on the deck, but indicated to his cabin mate that he was all right. At 0600, the injured crew member reported that he was in a great deal of pain and wished to go to port. Course was immediately set for Louisburg, N.S., some twenty-five miles away and at 1030, the man was pronounced dead at the Sydney City Hospital. The autopsy revealed the cause of death to be extradural haemorrhage.

Causes

Contributing factors to the accident and the death were:

- the imprudent action of the victim in restraining his arms inside the sleeping bag; and
- the bunk boards were not sufficient in preventing him from being thrown out.

Case 6

On December 3, 1983, Vessel F3, an 1154 gross ton side-

Case 6 (cont'd)

trawler, departed St. John's, Nfld., to fish off the coast. On board was a fisheries observer assigned to monitor the vessel's daily fishing operation, and he had been given permission to go home for Christmas. As vessel F was to remain at sea during the holiday season, he was to be transferred to another vessel in the area that was returning to port for Christmas.

No transfer had been effected due to inclement weather and, with the impending departure of the other vessel, the Observer was anxious to be transferred at the first convenient opportunity.

On the night of December 17/18, there was a break in the weather and two deck-hands along with the Observer were lowered over the side in a dory. The dory capsized and the deck-hands managed to climb back on board. The fisheries observer managed to grab hold of the lifebuoy that was thrown to him and place it around him but, as the line attached to the lifebuoy was not secured aboard the Vessel F3, he could not be hauled aboard. Three additional lifebuoys were thrown over the side towards the fisheries officer but he was unable to reach any of them. The port lifeboat of the Vessel F3 was launched but when the engine did not start, the lifeboat was rowed towards the man in the water. In the meantime, the master of the vessel standing by manoeuvred the vessel close to the fisheries officer and a deck-hand from this vessel went over the side with a life line attached to his waist and secured a life line around the waist of the fisheries observer. The latter was then hauled aboard the vessel but attempts by the nurse to revive him failed.

The victim was in the +3°C seawater for approximately 30 minutes. He was wearing a floater jacket but was very lightly clad for the environmental conditions. The autopsy revealed the cause of death to be drowning associated with hypothermia.

Causes

Contributing factors to the accident and the death were:

- the attempted transfer took place at night and in a small craft unsuitable for the operation, both conditions against the guidelines of the Department of Fisheries and Oceans;

- the first lifebuoy thrown was not secured to the vessel;

- the lifeboat engine failed to start;

- the type of PFD worn by the victim is not designed to keep the mouth/nose out of the water as with a standard lifejacket; and

Case 6 (cont'd)

- the victim was not warmly dressed.

Case 7

On February 18, 1984, Vessel G3, an 84 gross ton wooden fishing vessel, was alongside in Vancouver, B.C., preparing for the forthcoming herring-roe season. Two of the three men on board were in the forward hold washing it down and repairing some damaged planking.

There were no permanent ladders in the hold. While climbing the aluminum ladder which was used for access, the victim slipped and fell approximately 1.5 metres, hitting his head on the concrete deck. He died two days later of injuries related to a fractured skull.

The victim was wearing new, treaded rubber boots. He was not wearing a hard hat, though he had one on board.

Causes

Contributing factors to the accident and the death were:

- the use of a light portable ladder without adequate foot grip; and

- the victim was not wearing a hard hat.

A Final Word:

An accident aboard a vessel and/or a loss of life resulting therefrom, can be prevented by:

a) wearing proper work clothes and using safety equipment provided by the owners including hard hat and personal flotation device;

b) appreciating limitations of individuals and taking adequate safety precautions required for the job;

c) following standard procedures for the job and not taking short-cuts and unnecessary risks to save time;

d) ensuring, where practicable, that all shipside openings on deck are always secured when the vessel is underway;

e) always being aware of the dangers presented by wires, ropes, pennants, shackles, pulleys and other fishing equipment under stress and how they might react to the effects of the vessel's motion. Avoid standing in bights of ropes and wires;

f) periodic inspection of all fishing equipment, blocks, tackles, wires, and deck equipment for signs of stress and/or excessive wear;

g) ensuring that all fishing equipment and deck machinery are well maintained and in good repair;

h) becoming fully familiar with the operation of winches and clutching arrangements aboard the vessel;

i) avoiding, if at all possible, solo-operation of winches and mechanical equipment whilst simultaneously engaged in other duties;

j) the use of a signalman when the winch is being operated to guide the winch operator especially when the winch does not afford a clear view of the work site;

k) guarding or fencing, where practicable, all moving parts of winches which may present a hazard;

l) stopping machinery before effecting its repairs or cleaning or working in its close proximity;

m) not wearing loose clothing when working in the close proximity of moving machinery;

n) not consuming alcohol immediately prior to, or on the job;

o) becoming fully familiar with man overboard procedures and the need for, and use of, all emergency equipment carried on board;

p) avoiding, if at all possible, single-handed manning of the vessel; and

q) appreciating the hazards posed by the effects of the motion of a vessel in a seaway with her low freeboard.

Under the Shipping Casualties Reporting Regulations, all vessels in Canadian waters and all Canadian vessels in any waters are required to report any shipping casualty, accident or dangerous occurrence in which they are involved. The reports are a direct benefit to all mariners and are used for various purposes.

For example the information is used to pinpoint problem trends in human, navigational or equipment failure thus enabling recommendations for remedial measures to be made.

The data and compiled statistics are used for educational purposes in safety and accident prevention programmes in the hope that the annual number of marine casualties and accidents aboard ship will be decreased.

The information is also used to determine strengths and weaknesses in the country's search and rescue capabilities which in turn leads to improved search and rescue services through the allocation of funds and the provision of supplementary search and rescue craft and equipment in areas where they are required.

Therefore, the gathering of data and the collection of statistics play a major role in the improvement of conditions for the safety of life and property at sea.

APPENDICES

STATISTICAL TABLES

The statistical tables used in the study are:

Table 1

The statistical tables used in the study are:

Table 1

Year	Incidents	Deaths	Investigated by TC	Circumstances
1974	6	6	1	5D/-/1G
1975	6	6	2	5D/1M/-
1976	14	14	5	12D/-/2G
1977	5	5	0	3D/2M/-
1978	8	9	3	6D/-/3G
1979	8	8	5	6D/1M/1G
1980	9	9	6	7D/2M/-
1981	10	10	6	6D/2M/2G
1982	15	16	6	10D/3M/3G
1983	8	8	8	3D/4M/1G
1984	7	7	6	4D/2M/1G
1985	8	9	7	8D/1M/-
Totals	104	107	55	75D/18M/14G

D - Drownings/Presumed drownings
G - General/Miscellaneous
M - Machinery/Equipment related
TC - Transport Canada

75 of the 107 deaths involved drownings and thus represented 70.1% of all the cases reported in the 1974-1985 period.

Table 2

*

Month	Deaths
Jan	8
Feb	8
Mar	5
Apr	7
May	10
June	17
July	13
Aug	13
Sept	8
Oct	8
Nov	5
Dec	5
Total	107

Table 3

*

Incidents Involving Fishing Vessels of 15 gross tons & over	less than 15 gross tons
65	39

Total 104 incidents

* Reported incidents in the 1974-1985 period

The number of cases vary from year to year; however as demonstrated above, the majority of the reported incidents occurred in the period May through Auugust and on vessels greater than 15 gross tons.

CRIMINAL CODE OF CANADA

The Criminal Code of Canada states:

OPERATION OF MOTOR VEHICLE, VESSEL OR AIRCRAFT WHILE IMPAIRED OR WITH MORE THAN 80 MG ALCOHOL IN BLOOD.

237. Every one commits an offence who operates a motor vehicle or vessel or operates or assists in the opertion of an aircraft or has the care or control of a motor vehicle, vessel or aircraft whether it is in motion or not,

(a) while his ability to operate the vehicle, vessel or aircraft is impaired by alcohol or a drug; or

(b) having consumed alcohol in such a quantity that the concentration thereof in his blood exceeds eighty milligrams of alcohol in one hundred millilitres of blood. 1985, e.19 s. 36.

NOTE:

The Criminal Code further states that every one who commits the above offence is guilty of an indictable offence or an offence punishable on summary conviction.

The following information on hypothermia is reproduced by kind permission of the Canadian Red Cross Society from their pamphlet entitled Cold Water Survival.

COLD WATER SURVIVAL

INTRODUCTION

Scientists and medical researchers have been studying the effects on humans of immersion in cold water under conditions similar to those experienced following boating accidents on our large lakes and coastal waters. Within Canada, extensive research and publications on Cold Water Survival have come from the University of Victoria, Laval University in Quebec, University of Western Ontario and the University of Toronto. The results and the continuing research are being used to find ways to increase survival times through knowledge of behaviours in the water that reduce body cooling rates.

Even a small increase in survival time can mean the difference between being alive or dead when rescuers arrive.

Boaters (and others in danger of accidental immersion in cold water), should be aware of the factors that determine body cooling rate and eventual death from hypothermia. Such knowledge can help one avoid accidents or improve chances of survival if one does occur.

The questions attempt to focus attention on the major problems and recommendations about cold water survival.

1. What is Hypothermia and how does it kill?

Hypothermia is the lowering of deep body temperature (loss of body heat) that places the body in a general state of shock, which in turn depresses normal body functions.

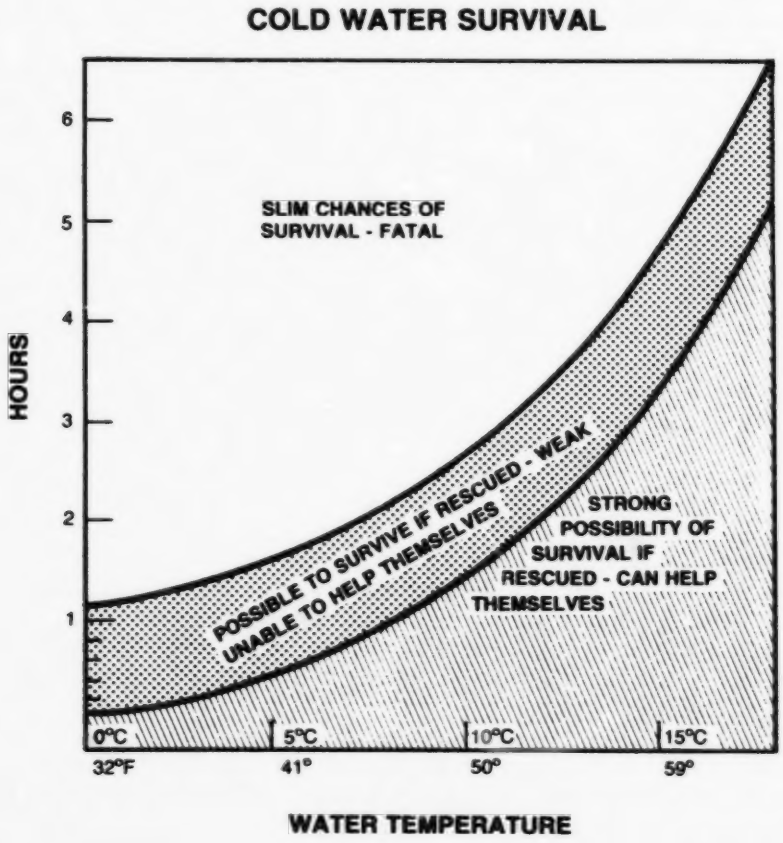
In cold water, the skin and peripheral (external) tissues become cooled very rapidly. However, it takes 10-15 minutes before the temperature of the heart, brain and other internal organs begins to drop. Intense shivering occurs in an attempt to increase the body's heat production and counteract the large heat loss.

Once cooling begins, the body temperature falls steadily and unconsciousness can occur when the deep body or core temperature drops from the normal 37°C (98.6°F) to approximately 32°C (89.6°F). Cardiac arrest is the usual cause of death when the core temperature cools to below 30°C (86°F).

2. How long can I survive in cold water?

The accompanying graph shows average predicted survival times of

average, adult humans in water of different temperatures. The figures are based on experimental cooling of average men and women who were holding still in ocean water and wearing a standard lifejacket and light clothing. The graph shows, for example, that predicted survival time is about 2½-3 hours in water of 10°C (50°F). Predicted survival time is increased by extra body fat and decreased by small body size. Although women generally possess slightly more fat than men they cool slightly faster due to their usually small body size. However, for comparable sizes, the man will cool faster.



3. What about children?

In addition to being smaller, children generally have less fat than their adult counterparts, and these two factors make them particularly vulnerable to cold water. People are often deceived by the fact that small children play "around" cold water for long periods, but observation will show that they do not remain immersed for long periods.

In the event of a family being immersed, it is important for the parents to either get children partially or completely out of the water or on some form of flotation (e.g. an overturned boat). A little boy should be pulled out of the water first because he loses heat faster than his twin sister. If no flotation is available the adults should sandwich the child or children between them to help equalize the cooling rate of all involved.

The above procedures take advantage of two important pieces of information:

- In almost all weather conditions the more the body is out of the water, the more slowly it cools.
- If immersion is unavoidable, the less a body surface area that is exposed to the water, the better.

4. Should I swim to keep warm?

No! Although the body produces almost three times as much heat when swimming slowly and steadily (e.g. side stroke) in cold water compared to holding still, this extra heat (and more) is lost to the cold water due to more blood circulation to the arms, legs and skin. Results show that the person swimming in a lifejacket cools 35% faster than when holding still.

5. How far can I swim?

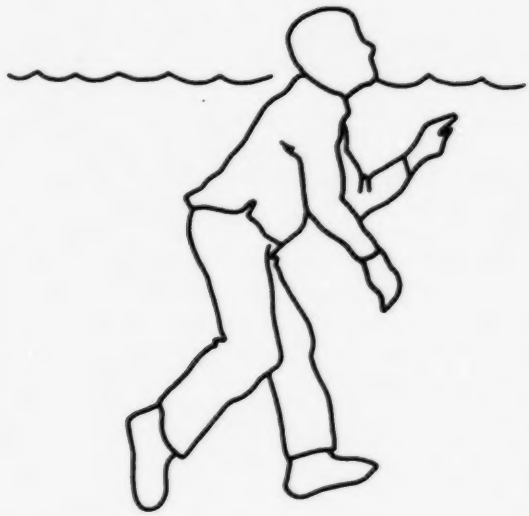
On occasion, shore may be close enough to reach despite a faster cooling rate with this activity. Tests conducted on people swimming in ocean water of 10°C (50°F) and wearing standard lifejackets and light clothing showed that the average person could cover only a short distance before being incapacitated by hypothermia. This distance will obviously be affected by one's swimming ability, amount of insulation and water conditions. It is not easy to judge distance and the shore may appear to be closer than it actually is.

In cold water, an individual is likely to be able to swim a distance of no more than 1/10th of what he could easily swim in warm water.

In most instances, the best advice is to stay with the boat!

6. What if I have no lifejacket or other flotation?

In this unfortunate situation, one is forced to adopt either of the following two "anti-drowning" techniques: treading water or drownproofing.



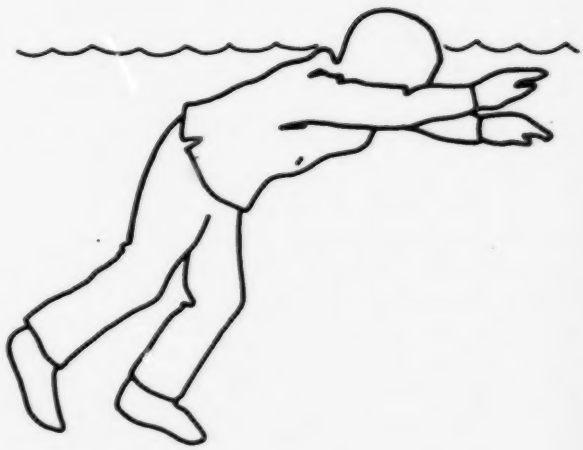
Treading Water

This technique is recommended over the drownproofing method.

Treading water involves continuous movement of the arms and legs in various patterns in order to keep the head out of the water. Test results show an average cooling rate of persons treading water that was 34% faster than while holding still in a lifejacket.

Drownproofing

In studies so far, drownproofing in cold water appears to be the fastest way to die from hypothermia.



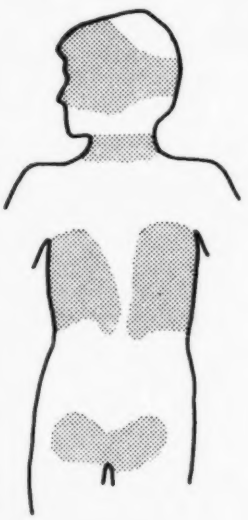
This procedure involves restful flotation with lungs full of air, interrupted every 10-15 seconds to raise the head out of water to breathe.

Drownproofing experiments in 10°C (50°F) water show that the body's cooling rate was 82% faster than while holding still in a lifejacket. This is mainly due to putting the head (a high heat loss area) into the water with the rest of the body.

Drownproofing is a survival technique that should be practised only in warm water.

7. What body regions are the critical areas for heat loss?

The head and neck are the most critical heat loss areas. In addition, certain other body regions have high rates of heat loss while a subject is holding still in cold water. Infrared pictures show that the sides of the chest (where there is little muscle or fat) are the major routes for heat loss from the warm chest cavity. The groin region also loses much heat due to large blood vessels near the surface. If an effort is made to conserve body heat, these regions deserve special attention, as described in section 8 following.



8. What behaviours will increase survival time?

Based on the heat loss information in section 7, two techniques were tested that attempted to reduce heat lost from the critical areas.

H E L P (Heat Escape Lessening Position)

This technique involves holding the inner side of the arms tight against the side of the chest over the "hot region" described in section 7. The thighs are pressed together and raised to close off the groin region. This body position was indeed a significant help, resulting in nearly a 50% increase in predicted survival time. It should be noted that the picture shows a person wearing a flotation device that has all its buoyancy high on the body, close to the surface of the water. This type of device is especially suitable for **H E L P.** This is a difficult position to maintain and it is advisable to practise it.

Huddle

"Common sense" would predict longer survival time with huddling. Studies show that if the huddle is formed so that the sides of the chest of different persons are held close together, a 50% increase in predicted survival time is obtained.

As with **H E L P** this is a difficult procedure to maintain and it is advisable to practise it.

9. Do different types of lifejackets and personal flotation devices (PFDs) offer more or less thermal protection?

Recent tests and studies have shown that flotation devices fall into three categories of thermal (heat) protection:

- **Poor Thermal Protection**

  All standard Kapok Lifejackets and most loose fitting foam lifejackets of the vest type offered no significant protection from cold water.

- **Fair Thermal Protection**

  Two types of PFDs offered significant thermal protection to the extent of a 50% to 75% increase in predicted survival time. The types were foam vests that possessed good adjustability for close fit to the chest and garment type Flotation Jackets that use buoyancy, and insulating foam between the inner and outer layers of fabric.

- **Good Thermal Protection**

  There are two types of PFDs that make a deliberate attempt to maximize thermal protection. These are based on improving the insulation potential of Flotation Jackets. One is a full Survival Suit which includes

foam in the legs and can be quickly fitted over normal clothing. These suits are designed primarily for military and commercial use, but are easily adaptable for use on pleasure craft especially open boats during the spring and fall.

The other is a convertible Flotation Jacket (illustrated) that has "convertible shorts" which help to trap water within insulating foam over the major heat loss region of the body (such as a "shorty" wet suit). These jackets will normally have a hood stowed in the collar.

10. Does alcohol consumption affect survival time?

Contrary to popular belief, alcoholic beverages do not warm a person and under no circumstances should they be given to a hypothermic casualty.

Alcohol dilates the blood vessels and may increase heat loss.

The consumption of alcohol while boating or engaged in water activities is undesirable. At a time of critical decision making, alcohol or anything that interferes with one's ability to think should be avoided. Alcohol is involved in about 1/3 of all boating fatalities.

11. Do people ever die of shock when falling into cold water?

Immersion in cold water (especially if sudden), causes immediate major changes in body function and there are isolated instances of "sudden death" being reported, but these are very uncommon. The cause of this "sudden death" is not clear and a number of different reasons have been suggested. One is a form of cardiac arrest resulting from the increase in heart rate and changes in blood pressure which accompany immersion in cold water. Other possible causes of death are related to hyperventilation (over breathing), which everyone experiences in response to the shock of cold water. It is possible that if one had plunged underwater or was in a rough sea that the hyperventilation could lead to uncontrolled aspiration (inhalation) of water and a form of drowning. Prolonged hyperventilation can lead to unconsciousness and subsequent drowning.

Because panic can magnify any of the above responses, it is important to remain calm and methodical if faced with a cold water emergency. If possible, enter the water gradually, allowing the body to adjust to the changing temperature. Consciously control your breathing as much as possible. The more clothing and insulation your body has, the less will be the initial shock on entry into cold water.

12. Does it help to get your body out of the water?

The answer is almost invariably yes. The body surrenders its heat to the water many times more quickly than to air of the same temperature, and it is often possible to stabilize body temperature once you are out of the water. Therefore, if possible, get on top of an overturned boat or any wreckage that is available.

13. How do you rewarm someone who has been in cold water?

The type of rewarming necessary depends on the degree of hypothermia evident. Often it is difficult to measure inner body temperature, therefore the following guidelines estimate the degree of hypothermia based on the symptoms evident in the casualty.

Mild Hypothermia

If the casualty is conscious, talking clearly and sensibly and shivering vigorously then the following steps should be taken:

All hypothermic casualties should be handled gently, avoiding jolts that might adversely affect the heart's function.

- Get them out of the water to a dry, sheltered area.
- DO NOT RUB THE SURFACE OF THE BODY.
- Remove wet clothing - if possible put on layers of dry clothing - cover the head and neck (hat/scarf).
- Apply warm (40-45°C) objects such as wet towels, water bottles, chemical heat packs (hand warmers) to head, neck and trunk. BE CAREFUL TO AVOID BURNS.
- Give warm drinks for mild hypothermic cases only - NEVER ALCOHOL.

Severe Hypothermia

If the casualty is getting stiff and is either unconscious or showing signs of clouded consciousness such as slurred speech, or any other apparent signs of deterioration, shivering may be reduced or absent; immediately transport to medical assistance where aggressive rewarming can be initiated. Once shivering has stopped, it is no use wrapping the casualty in blankets if there is no source of heat. This merely keeps them cold. A way must be found to donate heat to the casualty as quickly as possible.

The following are some methods that have been used in different situations to deliver heat to the severely hypothermic casualty.

- Donate heat to the trunk of the body by direct body contact, especially to the chest, with warm person(s). The rescuer should remove their upper clothing and huddle with the casualty inside blankets/sleeping bags.

- Apply warm (40-50°C) objects same as above.

- Rescue Breathing - if casualty's breathing has stopped.

In cases where signs of severe hypothermia are evident the casualty may appear to have no vital signs of life; this does not necessarily indicate the casualty's death. Immediate medical attention may save an individual in this situation.

Where possible, have the casualty immediately transported to hospital where more sophisticated rewarming techniques and monitoring of the heart and other body functions can be carried out.

In the unfortunate event of cold water immersion, your rate of progress into hypothermia depends on a variety of factors. These are: water temperature, what you are wearing, your body build (particularly the percentage of body fat), weather conditions, and how you behave in the water. This pamphlet provides information to help you be prepared to increase your chance of survival or that of someone else.

The following table summarizes how a selection of different situations can affect predicted survival time of the average adult* in water of 10°C (50°F).

Situation	Predicted Survival Time (Hours) in 10° C water	Situation	Predicted Survival Time (Hours) in 10°C water
NO FLOTATION		**WITH FLOTATION**	
Drownproofing	1.5	Swimming slowly	2.0
Treading water	2.0	Holding still	2.7
		H E L P	4.0
***Clothing worn was cotton shirt, pants, and socks, plus running shoes.**		Huddle	4.0
		Flotation Jacket	7.0

Transport Canada / Transports Canada
Coast Guard / Garde côtière

Canada

Small Craft Safety

Ship Safety Bulletin 9/83

9/83
20 April 1983

FATAL ACCIDENTS INVOLVING WINCHES AND WARPING DRUMS

The high incidence of fatalities where seamen have become trapped in winches/warping drums indicates that some basic safety precautions are being neglected in the Marine Industry generally.

The three main factors which have contributed to these accidents are:

(1) Failure to provide guards in way of winches and running wires;

(2) One man operation of a winch where the operator starts the winch and leaves the controls to tend a running wire himself, rather than making it a two person operation;

(3) Persons being required to perform unrelated duties in an area where winches and warping wires are operating, and the winch operators controlling the apparatus from a remote position, without full view and surveillance of the whole operation.

Special attention should be given by owners/masters/operators to the Safe Working Practices Regulations and to ensure that all work areas are made as safe as possible, with respect to guards, warning notices, location of controls, and personnel instruction.

Ship Safety Bulletin 12/84

12/84
August 29, 1984

MOVING MACHINERY HAZARDS

A recent fatal accident aboard a fishing vessel has been found to be due to the victim's clothing being caught in the rotating main machinery shaft coupling.

Ship owners and operators are once more reminded of the need for care when working near moving machinery (See Ship Safety Bulletin 9/83).

It is strongly recommended that all ships carry at least one copy of Transport Canada's Publication "Personal Safety on Ships", TP-5021 for the perusal of all ship staff.

Attention is also drawn to Sections 7 and 20 of the Safe Working Practices Regulations covering protection against moving machinery hazards; these Regulations apply to all Canadian ships.

Extract from the "Canadian Coast Guard Manual of Safety and Health for Fishermen", TP 1283.

1.2 Role of Persons concerned with Fishing

1.2.1 Persons who employ fishermen should:

(i) provide such supervision as will ensure as far as possible that fishermen perform their work in the best conditions of safety and health;

(ii) satisfy themselves as far as possible that fishermen are properly instructed in the dangers of their occupation and the precautions necessary to avoid accidents and injury to health, and in particular that newly recruited fishermen are properly instructed in safety practices;

(iii) post, in prominent places on board, warning notices and instructions whenever required by any safety regulations or in accordance with safe-practice standards;

(iv) provide and issue to each new entrant instructions in elementary safety precautions.

1.2.3 Fishermen should make proper use of all safeguards, safety devices and other appliances furnished for their protection or the protection of others.

1.2.5 Except in cases of necessity, or when duly authorized, fishermen should not remove, alter or interfere with any safety device or other appliance furnished for their protection or the protection of others, or interfere with any method or process adopted with a view to avoiding accidents and injury to health.

1.2.8 Fishermen should refrain from careless or reckless practices or actions likely to result in accidents or injury to themselves and others, or which may cause damage to equipment or to the environment.

4.1 Gangways, Stairways, Ladders, Railings and Guards

4.1.8 The use of portable ladders at sea should be avoided. If it is necessary to use them, they should be firmly secured. Non-slip bases may be used or the ladder held at its lower end by another person. The legs at each end should be placed on flat, solid surfaces and always lashed in place.

4.1.14 Portable handrails should always be secured and in position when the vessel is underway.

4.3 Precautions against Falling Overboard

4.3.1 Principal causes of falls overboard are:

- the pitch and roll of small vessels,
- sudden accelerations,
- the conducting of complex fishing operations on open decks,
- the frequent hauling in and letting out of gear over the side or stern, the working on wet slippery decks that sometimes are covered with fish blood and offal,
- the inevitable fatigue that results from long working hours.

Always be on guard - falling overboard is a major cause of fatalities among fishermen.

4.3.5 When fishermen are required to work in an exposed place or to reach overside in heavy weather, they should be secured by a safety line or safety belt and should wear life-jacket.

4.3.6 During bad weather, or when the vessel rolls heavily, the speed of the vessel should be reduced for the fetching of food, the reading of the log, soundings, inspections and other work on deck.

4.3.7 to prevent men from falling or being washed overboard in bad weather, suitable lifelines with man ropes should be rigged on the working deck.

4.3.8 In heavy weather, fishermen should not work alone on deck without the watch in the wheelhouse being aware of their presence.

4.5.6 A draw-bucket should not be used when a vessel is under way as there is a danger that a man may be pulled overboard.

5.1 General

5.1.4 Fishermen should stand clear of running warps so that the vessel's motion does not throw them onto the ropes.

5.1.7 When fishing gear is fouled, it should be cleared in the safest possible way.

6.1 Main Propulsion and Auxiliary Machinery

6.1.6 Moving machinery parts should not be cleaned while the machine is in operation. Before machinery is started or turned over, care should be taken to ensure that nobody is working on, or in the way of, moving parts. Always check that the stern is clear before moving the rudder or turning the propeller when in port.

6.1.7 Men servicing operating machinery should wear clothing as close-fitting as possible and headgear to cover long hair. Neckties and rings on fingers should not be worn.

6.2 Winches and Hoists

6.2.1 As far as practicable, all moving parts of winches which may present a hazard should be securely guarded or fenced. Sheaves should also be guarded where practicable.

6.2.18 Scarves, loose clothing and long hair are liable to be caught in a winch and should not be worn.

7.2 Protective Clothing and Equipment

7.2.1 Work clothes should fit as closely to the body as possible; there should be no loose strings or cuffs on trousers. Pockets should be few and as small as practicable.

7.2.4 During rain or bad weather and in darkness, protective clothing having a highly visible colour should be worn.

7.2.9 In selecting work gloves, consideration should be given to the hazards the wearer may encounter and to the need for free movement of the fingers. Gloves should fit snugly at the wrists.